March 2010

e MESA Mathematics Engineering Science Achievement UTAH

The purpose of MESA is to increase the number of under-served ethnic minority and all female students who pursue course work, advanced study, and possible careers in mathematics, engineering, and science areas.

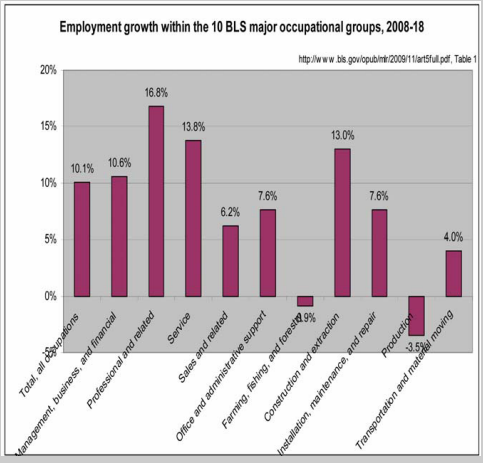
It's all about you!

Computer Science and Mathematic Professions Projected to be Majority of Job Growth

STEM Trends, March 31, 2010, http://www.cpst.org

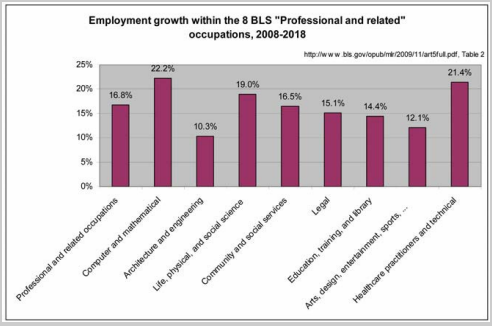
A recent post from the Computing Community Consortium blog, "Where the jobs are...", indicated that the forecast for computer and mathematical jobs is encouraging, particularly compared to other fields of employment. Ed Lazowska, the Bill and Melinda Gates Chair in Computer Science and Engineering at the University of Washington, analyzed the U.S. Bureau of Labor Statistics' 10-year forecast of job growth in all fields of employment to determine the outlook for jobs from 2008 until 2018.

In the category of "professional and related" occupations, which includes computer science, the projected growth between 2008 and 2018 is 16.8 percent, while the average growth across all occupations is projected to be 10.1 percent.



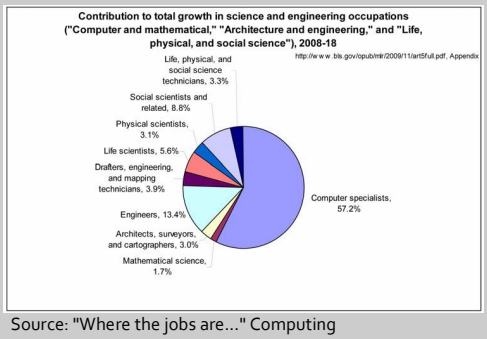
Source: "Where the jobs are..." Computing Community Consortium blog. Jan 4, 2010.

Of the eight occupational clusters in the "professional and related" category, computer and mathematical occupations "are projected to grow by the largest percentage between now and 2018 - by 22.2 percent", Lazowska adds, "In other words, 'Computer and mathematical' occupations are the fastest growing occupational cluster within the fastest growing major occupation group".



Source: "Where the jobs are..." Computing Community Consortium blog. Jan 4, 2010.

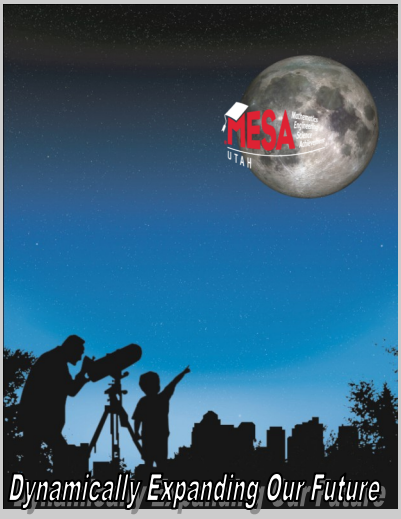
Finally, Lazowska reports, "Looking at all science and engineering occupations - computer and mathematical, architecture and engineering, and life, physical, and social science - computer science occupations are projected to be responsible for nearly 60 percent of all job growth between now and 2018".
The next largest contributor is all fields of engineering combined, with a projected growth of 13.4 percent. All of the life sciences combined are projected to account for 5.6 percent, and all of the physical sciences combined are projected to account for 3.1 percent.



Source: "Where the jobs are..." Computing Community Consortium blog. Jan 4, 2010.

To view the report, "**Where the jobs are...**", visit:

http://www.cccblog.org/2010/01/04/where-the-jobs-are/.



Willow Valley Middle Takes First in Bridge Building Competition

Willow Valley Middle School is currently in its first year of MESA club. We currently have 80 students enrolled with an average meeting of 60. We currently have 2 MESA advisors.

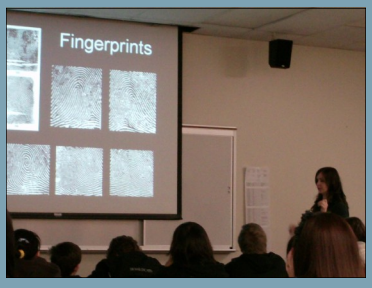
In February a group of six students were chosen to represent Willow Valley Middle School in the bridge building contest for Latino Family Day at Utah State University. This event is to get students excited about college, explore their college options and learn more about Utah State University. The students were given materials to construct a bridge and were given two weeks to build it. The students were so excited to start building. They spent several days after school drawing and constructing their bridge. Each school was to take their bridge up to Utah State University for the big test. Each bridge was put under the bridge compressor to see how much weight it could hold. The bridge from Willow Valley was finally demolished at 148 lbs. Willow Valley took first place. The grand prize was a pizza party for the whole MESA club. Willow Valley couldn't be prouder.

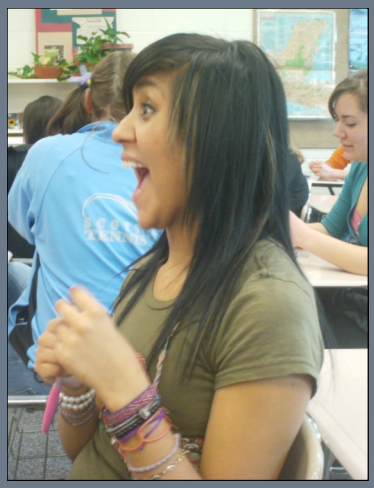
Alicia Moser
Willow Valley Middle School
Cache School District

CSI: Ben Lomond High: "Of course a little blood and gore got their attention" -Mary Ellen McComb

On Wednesday, March 3rd, we attended a CSI presentation by Sandy Ladd and Angela Petersen of the Weber Metro Crime Scene Investigation Unit. They explored two cases from this area. The students were given chances to offer solutions to solve the crimes. Of course a little blood and gore got their attention. We went with Mrs. Chadwick from Highland Junior High School and one of our former students, Julie Corona, who is in her Junior year in the Criminal Justice Program at WSU. The students really enjoyed the opportunity.

Mary Ellen McComb—MESA Advisor
Ben Lomond High School
Ogden School District





Ben Lomond High School

Making a Bristle Bot using a toothbrush. Weber State University presented to students who all had a great time.

Taylorsville High School

At the Taylorsville High School holiday party, students worked to build the tallest possible structure from a given number of spaghetti sticks and marshmallows. They then decorated and ate holiday cookies.

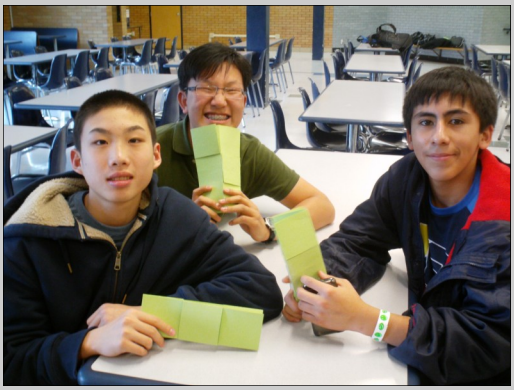
Mount Logan Middle Takes Advantage of its Proximity to Utah State University

to invite guest speakers from various departments to capture the attention of our MESA students and open their minds to future career possibilities.

We have also been exploring geometric shapes, such as the reflection, rotation, and attributes of pentominoes.

Another fun investigation led us to making tetratetraflexagons – cut and folded paper booklets that have eight pages, with only four at a time being visible.

Cherie Kircalli
MESA Advisor
Mount Logan Middle School



Highland Jr. High

Deidre Schoenfeld from the University of Utah College of Engineering came to help students build radios. She was fantastic - she brought all the supplies and came 2 weeks later to make sure everyone got them finished.

Sara Byrd
MESA Advisor
Ogden School District

A MESA Club in Motion . . .

During the month of January students at Willow Valley Middle School designed a roller coaster for marbles using foam pipe insulation. Students were given a 45 minute period to build and test their coasters. Students could build ramps, loops, jumps, hills and received different amount of points for each. It was a great way for the students to learn about how stored energy (potential energy) is converted into the energy of motion (kinetic energy).

This lesson provided a hands-on opportunity for students to explore concepts relating to energy and motion. Building and running pipe insulation roller coasters allowed students a chance to identify and manipulate the effects of gravity, momentum, friction, potential energy, and kinetic energy.

The students had so much fun and continually begged for more time. This was activity that they would enjoy doing several times throughout the year.

Alicia Moser (MESA advisor)
Willow Valley Middle School
Cache School District

MESA Students Asked To Investigate Water Quality

Our MESA club has been very busy lately! We are currently working on two big projects. The first is an Environmental Awareness Fair that we will host here at the school. We plan to hold it May 26th. The students have been very busy coming up with sponsors and various environmental groups that may want to have a booth at the fair. The students are very excited about hosting this event.

The second project that we are working on is a water quality test of different samples from around the school. The students in our school are always claiming that a certain drinking fountain has the best water, and thus they walk the furthest possible distance from their class in order to get a drink. Some teachers wanted to know if this was actually the case or if students just wanted to spend more time in the hall, so they asked our club to perform some tests from various drinking fountains around the school. Our tests are not complete yet, but so far we have seen some interesting results.

In addition to these projects the students also enjoyed the winter season as we made math and science holiday cards for the teachers, and tested their engineering skills in gingerbread house construction.

As we enter the spring, our club has goals to do more research and experiments outside, and the kids are looking very forward to this. The students in our club are working hard and they have made the club very enjoyable for me to sponsor!

Carissa Sanders
MESA Club Advisor
Tooele Jr. High

	2009-2010				
	Actual # of students in school	% of total student body	Actual # of students in MESA	% of specific group in MESA	% Of Students in MESA
African Americans	2129	2.3%	300	4.9%	
American Indians/Alaskan Natives	1164	1.3%	125	2.1%	
Asians	2776	3.0%	565	9.3%	
Hispanics/ Latino	20377	22.3%	1816	29.9%	
Pacific Islanders/Native Hawaiians	2414	2.6%	362	6.0%	
White Females	30374	33.3%	2014	33.2%	
White Males	31400	34.4%	740	12.2%	
Other/ Unknown	600	0.7%	144	2.4%	
Totals:	91234	100.00%	6066	100.00%	6.65%

The 2009-2010 MESA Outstanding Teacher

Award has been presented to **Catherine McDonald** of Cottonwood High School!

While teaching Algebra II, Honors Algebra II, and Geometry to a wide variety of students, Catherine saw the need to inspire the MESA targeted students to succeed in math, and she volunteered to become the MESA Advisor when the previous advisor departed.

She has been a MESA Advisor since 2008 and in that brief two years, she has had three teams qualify for the state competition in the National Trebuchet Challenge where one team took first place and qualified for the national competition in Denver. The Cottonwood team took fourth place overall.

Catherine also had four MESA students participate in the State Science Olympiad at Weber State University, where two students took first place in the Chemistry Lab competition and two students took third place in the Physics Lab competition!

This year Catherine's MESA students plan to compete in the state MESA Wind Energy competition at Lagoon, USU Physics Day; the state Science Olympiad competition at Weber State University and the TEAMS competition held at the University of Utah.

Catherine has inspired her MESA Students to create their own MESA website, organize tutoring sessions, and hold monthly meetings with professional guest speakers.

2010 MESA SCHOLARSHIP RECIPIENTS

Last Name	First Name	Career/Major	Ethnicity	Gender	Current School	Current School District	Intended School	Amount	Company (s)
Jones	Adam	Mechanical Engineer	Bi-Racial	Male	Bonneville	Weber	UU	1,000$	ATK
Lu	Vi	Physics	Asian	Male	Copper Hills	Jordan	SLCC/UU	1,000$	ATK
Tran	Peter	Mechanical Engineer	Asian	Male	AMES	Charter	UU	1,000$	ATK
Zamora	Carmen	Chemical Engineer	Hispanic	Female	AMES	Charter	UU	1,000$	ATK
Nquyen	Uyen-Phuong	Mechanical Engineer	Asian	Female	Cottonwood	Granite	UU	1,000$	BARD
Pienu	Victoria	Registered Nurse	African American	Female	Itineris	Jordan	WSU	1,000$	Intermountain Healthcare
Truong	Aileen	Nursing	Asian	Female	Kearns	Granite	UU	1,000$	Intermountain Healthcare
Tuuhetaufa	Melanie	Nursing	Pacific Islander	Female	East	Salt Lake	WSU	1,000$	Intermountain Healthcare
Pacheco	Elmer	Computer Engineering	Hispanic	Male	Kearns	Granite	UU	1,000$	L-3
Belgard	Sena	Forensic Anthropology	Bi-Racial	Female	AMES	Charter	UU/Westy	1,000$	Questar
Camu	Emilio	Neurosurgeon	Asian	Male	Cottonwood	Granite	UU	1,000$	U of U Math Dept
Dang	Anh	Medical Doctor	Asian	Male	Clearfield	Davis	UU	1,000$	U of U Math Dept
Lee	Samantha	Reconstructive Surgeon	Asian	Female	Copper Hills	Jordan	UU	1,000$	U of U Math Dept
Matute	Skarleth	Human Biology	Hispanic	Female	AMES	Charter	UU	1,000$	U of U Math Dept
Quinonez	Sean	General Practioner	Hispanic	Male	Itineris	Jordan	UU	1,000$	U of U Math Dept
Nquyen	Tramy	Dentist	Asian	Female	Taylorsville	Granite	UU	1,000$	UHEAA
Salinas	Maria	Math Professor	Hispanic	Female	AMES	Charter	USU/UU	1,000$	UHEAA
deJong	Jessica	Marine Biologist	Caucasian	Female	Layton	Davis	WSU	1,000$	UT Science Advisor's Office
Fillmore	Melissa	Nursing	Caucasian	Female	Stansbury	Tooele	USU	1,000$	UT Science Advisor's Office
Harris	Breanna	Registered Nurse	Bi-Racial	Female	Horizonte	Salt Lake	SLCC	1,000$	UT Science Advisor's Office
Mendoza	Janette	Surgeon	Hispanic	Female	AMES	Charter	SLCC/UU	1,000$	UT Science Advisor's Office
Mendoza	Matthew	Architect / Civil Engineering	Hispanic	Male	West	Salt Lake	SLCC/UU	1,000$	UT Science Advisor's Office
Phung	Diana	Physician	Asian	Female	Hunter	Granite	UU/WSU	1,000$	UT Science Advisor's Office
Schmidt	Eryn	Statistician	Caucasian	Female	West Jordan	Jordan	USU	1,000$	UT Science Advisor's Office
Smith	Mary	Doctor	African American	Female	East	Salt Lake	UU	1,000$	UT Science Advisor's Office
Nquyen	Anna	Medicine	Asian	Female	Cottonwood	Granite	UU	1,000$	Watson
Nquyen	Vinh	Biomedical Engineering	Asian	Male	West	Salt Lake	UU	1,000$	Watson
							Total	27,000$	

Calendar of Events

- Mon 4/12/10 - **MESA Scholarship Awards Reception**, Miller Campus, SLCC

- Sat 4/17/2010 – **Jordan & Canyon School Districts' MESA RAMA**, 10:00 a.m. to 1:00 p.m., South Towne Mall, Sandy, Utah. Attendance is open to all schools and the public. Features exhibits and hands on activities by Jordan and Canyon MESA middle schools and high schools in science and math as well as exhibits from several outside organizations.

- Sat 4/24/10 - **University of Utah's Open House**. Contact Heather Heinz, hheinz@sa.utah.edu

- Fri 4/30/10 - **U's Mechanical Engineering Design Day**, U of U Union. Time TBA. Design Day is open to all high school students. Senior ME students will showcase their senior design projects. Contact Cameron Graham, cameron.graham@utah.edu .

- Sat May 1st – Application deadline for Academy at Boise State University- e-Camp - Grades 8-9; and Engineering Academy at Boise State University- e-Girls - Grades 9-10;

- Fri 5/14/10 **- Physics Day at Lagoon**, with the state MESA USA Engineering Competition Wind Energy Challenge being held on this date - http://129.123.12.38/

- June 6-8, 2010 Engineering Academy at Boise State University- e-Camp - Grades 8-9;
  Students who are currently in 8th or 9th grade can use hands-on activities and projects involving self discovery, cooperative learning, critical thinking, and problem solving while living on campus in a college dormitory. All food, housing and recreational activities are provided. Cost - $200 (scholarships available). Application deadline is May 1st.
  coen.boisestate.edu/K-12connection/SummerPrograms.html

- June 11-12, 2010 Engineering Academy at Boise State University- e-Girls - Grades 9-10;
  e-Girls is a free overnight program for girls currently in 9th and 10th grade. Enrollment is limited to 40 girls. Workshops led by Society of Women Engineers professionals and college students may include: Biomechanics of Footwear, Packaging and the Environment, Virtual Worlds with Alice, Solving Forensic Mysteries, Physics of Rock Climbing/Rope Walking, A World of Career Choices, and more! Cost – free. Application deadline is May 1st.
  coen.boisestate.edu/K-12connection/SummerPrograms.html

- June 7-10, 2010 - **USU Engineering State**; USU Campus, Logan. Engineering State is an event held by the College of Engineering for high school juniors. Prospective high school juniors interested in attending Utah State University will experience a hands-on, in-depth view of each department within the College of Engineering and solve common problems using the strategies and tools of today's engineers.
  http://www.engineering.usu.edu/htm/engineering-news/e-state

- (***Deidre, Specific date pending***) Mon-Fri June 2010, **Hi-GEAR Commuter Engineering Camp**, U of U College of Engineering – Contact Deidre Schoenfeld at dschoenfeld@coe.utah.edu

MESA Contact

Jeff Ojeda
jeffrey.ojeda@schools.utah.gov
(801) 538-7945

Jennifer Yates-Givens
Jennifer.yates-givens@schools.utah.gov
(801) 538-7803